

Actuarial Cost Estimates in General

What will this amendment cost? Unfortunately, there is no simple answer. There are two major reasons for the complexity of the answer:

- First, all actuarial calculations, including the ones in this cost estimate are based on a lot of assumptions about the future – demographic assumptions about the percentage of your employees that will terminate, die, become disabled, and retire in each future year, and economic assumptions about what salary increases each employee receives and the most important assumption: what the assets at CalPERS will earn for each year into the future until the last dollar is paid to current members of your plan. While CalPERS has set these assumptions as our best estimate of the real future of your plan, it must be understood that these assumptions are very long term predictors and will surely not be realized each year as we go forward. For example, the asset earnings for the past 15 years at CalPERS have ranged from -7.2% to 20.1%, yet the 15 year compound return has been 10.4%, well above our assumption.
- Second, the very nature of actuarial funding produces the answer to the question of amendment cost as the sum of two separate pieces:
 1. The increase in Normal Cost (i.e., the increase in future annual premiums in the absence of surplus or unfunded liability) expressed as a percentage of total active payroll, and
 2. The increase in Past Service Cost (i.e., Accrued Liability – representing the current value of the increased benefit for all past service of current members) which is expressed as a lump sum dollar amount.
- The cost is the sum of a percent of future pay and a lump sum dollar amount (the sum of an apple and an orange if you will). To communicate the total cost, either the increase in Normal Cost (i.e., future percent of payroll) must be converted to a lump sum dollar amount (in which case the result is called the increase in the present value of benefits), or the Past Service Cost (i.e., the lump sum) must be converted to a percent of payroll (in which case the result is the increase in the employer's rate). Converting the Past Service Cost lump sum to a percent of payroll requires a specific amortization period. So, the new employer rate can be computed in many different ways depending on how long one will take to pay for it. And don't forget the first bullet point above; all of these results depend on all of the assumptions being exactly realized.

Rate Volatility

As is stated above, the cost estimates supplied in this communication are based on a number of assumptions about very long term demographic and economic behavior. Even if these assumptions are exactly realized (terminations, deaths, disabilities, retirements, salary growth, and investment return) there will be differences on a year to year basis. This year to year difference between actual experience and the assumptions is called gains and losses and serve to raise or lower the employer's rates from year to year. So, the rates will bounce around, especially due to the ups and downs of investment returns.

The volatility in annual employer rates may be affected by this amendment. The reason is that higher benefits and earlier retirement ages require the accumulation of more assets per member earlier in their career. Rate volatility can be measured by the ratio of plan assets to active member payroll. Higher asset to payroll ratios produce more volatile employer rates. To see this, consider two plans, one with assets that are 4 times active member payroll, and the other with assets that are 8 times active member payroll. In a given year, see what happens when assets rise or fall 10% above or below the actuarial assumption. For the plan with a ratio of 4, this 10 percent gain or loss in assets is the same in dollars as 40% of payroll; and for the plan with a ratio of 8, this is equivalent to 80% of payroll. If this gain or loss is spread over 20 years (and we oversimplify by ignoring interest on the gain or loss), then the first plan's rate changes by 2% of pay while the second plan's rate changes by 4% of pay.

CONTRACT AMENDMENT COST ANALYSIS - VALUATION BASIS: June 30, 2007
SAFETY PLAN FOR CITY OF NEWPORT BEACH

Employer Number: 60

Benefit Description: Section 21362.2, 3% @ 50 Full Formula for Local Safety Members (Safety Lifeguards Only)

When a plan is amended, liability changes but assets do not. In addition, the desired state is to be 100% funded (i.e., to bring assets to equal accrued liability). Therefore, we disclose the ratio of accrued liability to payroll rather than assets to payroll as a measure of the plan's potential future rate volatility. The higher the ratio, the more volatile the future rate may be. The table below contains these measures of potential future rate volatility.

As of June 30, 2007		Current Plan		Post-Amendment
Accrued Liability	\$	308,551,677	\$	309,338,753
Payroll		25,034,573		25,034,573
Volatility Index		12.3		12.4

It should also be noted that these ratios tend to stabilize as the plan matures. That is, all plans with no past service start their lives with zero assets and zero accrued liability – and so asset to payroll ratio and liability to payroll ratio of zero. However, as time goes by these ratios begin to rise and then tend to stabilize at some constant amount as the plan matures. Higher benefit levels and earlier expected retirements produce higher constant future ratios. For example, our miscellaneous plans have average ratios that range from 2.6% for 2% @ 60 plans to 5.1% for 2.7% @ 55 plans. For safety plans, the ratios range from 5.2% for 2% @ 55 plans to 9.3% for 3% @ 50 plans.

Present Value of Projected Benefits

The table below shows the change in the total present value of benefits for the proposed plan amendment. The present value of benefits represents the total dollars needed today to fund all future benefits for *current* members of the plan (i.e., without regard to future employees). The difference between this amount and current plan assets must be paid by future employee and employer contributions. As such, the change in the present value of benefits due to the plan amendment represents the "cost" of the plan amendment.

However, for plans with excess assets some or all of this "cost" may already be covered by current excess assets.

As of June 30, 2007		Current Plan		Post-Amendment
Total Assets at Market Value (MVA)	\$	292,102,211	\$	292,102,211
Actuarial Value of Assets (AVA)		250,062,262		250,062,262
AVA / MVA		85.6%		85.6%
Present Value of Projected Benefits (PVB)	\$	364,567,961	\$	365,332,822
Actuarial Value of Assets (AVA)		<u>250,062,262</u>		<u>250,062,262</u>
Present Value of Future Employer and Employee Contributions (PVB – AVA)	\$	114,505,699	\$	115,270,560
Change to PVB				764,861

Accrued Liability

It is not required, nor necessarily desirable, to have accumulated assets sufficient to cover the total present value of benefits until every member has left employment. Instead, the actuarial funding process calculates a regular contribution schedule of employee contributions and employer contributions (called normal costs) which are designed to accumulate with interest to equal the total present value of benefits by the time every member has left employment. As of each June 30, the actuary calculates the "desirable" level of plan assets as of that point in time by subtracting the present value of scheduled future employee contributions and future employer normal costs from the total present value of benefits. The resulting "desirable" level of assets is called the *accrued liability*.

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A plan with assets exactly equal to the plan's accrued liability is simply "on schedule" in funding that plan, and only future employee contributions and future employer normal costs are needed. A plan with assets below the accrued liability is "behind schedule", or is said to have an *unfunded liability*, and must temporarily increase contributions to get back on schedule. A plan with assets in excess of the plan's accrued liability is "ahead of schedule", or is said to have *excess assets*, and can temporarily reduce future contributions. A plan with assets (AVA) in excess of the total present value of benefits is called *super-funded*, and neither future employer nor employee contributions are required. Of course, events such as plan amendments and investment or demographic gains or losses can change a plan's condition from year to year. For example, a plan amendment could cause a plan to move all the way from being super-funded to being in an unfunded position.

The changes in your plan's accrued liability, unfunded accrued liability, and the actuarial values of assets funded ratio as of June 30, 2007 due to the plan amendment are shown in the table below.

As of June 30, 2007	Current Plan	Post-Amendment
Entry Age Normal Accrued Liability (AL)	\$ 308,551,677	\$ 309,338,753
Actuarial Value of Assets (AVA)	250,062,262	250,062,262
Unfunded Liability/(Excess Assets) (UAL = AL - AVA)	\$ 58,489,415	\$ 59,276,491
Funded Ratio (AVA / AL)	81.0%	80.8%
Change to AL		787,076

Total Employer Contribution Rate

While the table above gives the changes in the accrued liability and funded status of the plan due to the amendment, there remains the question of what will happen to the employer contribution rate because of the change in plan provisions.

CalPERS policy is to implement rate changes due to plan amendments immediately on the effective date of the change in plan benefits. This change is displayed as the "Change to Total Employer Rate" on the following page. If the contract amendment effective date is on or before June 30, 2009, the change in the employer contribution rate should be added to the employer's current rate. In general, the policy also provides that the change in unfunded liability due to the plan amendment will be separately amortized over a period of 20 years from the effective date of the amendment and all other components of the plan's unfunded liability/excess assets will continue to be amortized separately.

However, your actuary may choose to apply different rules to plans with a current employer contribution rate of zero. The pre-amendment excess assets in these plans were sufficient to cover the employer's normal cost for one or more years into the future. A plan amendment will use up some or all of the pre-amendment excess assets. In order to maintain our goal of providing rates that are relatively stable, while taking into account known or expected future events, your actuary may decide to spread any remaining excess assets over a single number of years. This is known as a "fresh start" and will, in no case, be less than 5 years. You may call your actuary to discuss further alternative financing options. If the amendment uses up all excess assets and creates an unfunded liability (i.e., from being ahead of schedule to behind schedule), the total post-amendment unfunded liability may be amortized over 20 years.

In no case may the annual contribution with regard to a positive unfunded liability be less than the amount which would be required to amortize that unfunded liability, as a level percent of pay, over 30 years. The table on the following page shows the change in your plan's employer contribution rate due to the plan amendment for fiscal year 2009-2010.

CONTRACT AMENDMENT COST ANALYSIS - VALUATION BASIS: June 30, 2007**SAFETY PLAN FOR CITY OF NEWPORT BEACH****Employer Number: 60****Benefit Description: Section 21362.2, 3% @ 50 Full Formula for Local Safety Members (Safety Lifeguards Only)**

As of June 30, 2007	Current Plan	Post-Amendment
2009-2010 Employer Rate		
Payment for Normal Cost	15.251%	15.376%
Payment on Amortization Bases	13.509%	13.779%
Total Employer Rate	28.760%	29.155%
Change to Normal Cost		0.125%
Change to Total Employer Rate		0.395%
Current Amortization Bases ¹	Multiple Bases	
Amendment Amortization Base		
- Fresh Start ²		N/A
- Multiple Base ³		20-year
2009-2010 Employee Rate		
Total Employee Rate	9.000%	9.000%
Change to Total Employee Rate		0.000%
2010-2011		
Estimated Employer Rate	28.3%	28.8%
Projection Amortization Base	Multiple Base	Multiple Base

1 - Details of the current amortization base are shown on page 13 of June 30, 2007 annual valuation report. If you have adopted any other subsequent amendments, the current amortization base is the schedule after these adopted amendments.

2 - If a fixed number of years is shown, it means that the current unfunded actuarial liability is projected and amortized over this fixed number of years. This amortization replaces the amortization schedule shown in your June 30, 2007 annual valuation and any other subsequent amendments you have adopted.

3 - If 20-year is shown, it means that the change in liability due to plan amendments is amortized separately over a 20-year period. This amortization schedule is in addition to the amortization schedule shown in the June 30, 2007 annual valuation and any other subsequent amendments you have adopted.

In the above table, the information shown represents the actual initial contribution rate that will apply during fiscal year 2009-2010 if you adopt the amendment. However, these figures do not incorporate the investment return in 2007-2008. The estimated employer rate shown for 2010-2011 incorporates this return and assumes no demographic gains or losses. The rate of return used for the post-amendment analysis was -5.1%. Due to timing and availability of data, the annual valuation projected an employer rate using a rate of return of -2.5%. If the investment rate of return of -5.1% had been available at the time of the annual valuation, the projected employer contribution rate shown in the annual valuation report would be approximately 0.1% higher.

Note that the change in normal cost in the table above may be much more indicative of the long term change in the employer contribution rate due to the plan amendment. The plan's payment on amortization bases shown in the table above is a temporary adjustment to the employer contribution to "get the plan back on schedule". This temporary adjustment to the employer rate varies in duration from plan to plan. For example, a plan with initial excess assets being amortized over a short period of time will typically experience a large rate increase when excess assets are fully amortized. While a plan amendment for such a plan may produce little or no increase in the employer contribution rate now, the change in normal cost due to the plan amendment will become fully reflected in the employer contribution rate as soon as initial excess assets are fully amortized.

Disclosure

If your agency is requesting cost information for two or more benefit changes, the cost of adopting more than one of these changes **may not** be obtained by adding the individual costs. Instead, a separate valuation must be done to provide a cost analysis for the combination of benefit changes. If the proposed plan amendment applies to only some of the employees in the plan, the rate change due to the plan amendment still applies to the entire plan, and is still based on the total plan payroll.

Any mandated benefit improvements not included in the June 30, 2007 annual valuation have not been incorporated into this cost analysis.

Please note that the cost analysis provided in this document **may not** be relied upon after August 1, 2009. If you have not taken action to amend your contract, by this date, you must contact our office for an updated cost analysis, based on the new annual valuation.

Descriptions of the actuarial methodologies, actuarial assumptions, and plan benefit provisions may be found in the appendices of the June 30, 2007 annual report. Please note that the results shown here are subject to change if any of the data or plan provisions change from what was used in this study.

Certification

This actuarial valuation for the proposed plan amendment is based on the participant, benefits, and asset data used in the June 30, 2007 annual valuation, with the benefits modified if necessary to reflect what is currently provided under your contract with CalPERS, and further modified to reflect the proposed plan amendment. The valuation has been performed in accordance with standards of practice prescribed by the Actuarial Standards Board, and the assumptions and methods are internally consistent and reasonable for this plan, as prescribed by the CalPERS Board of Administration according to provisions set forth in the California Public Employees' Retirement Law.



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Summary of Plan Amendments Valued

COVERAGE GROUP 76001

Pre-Amendment

- The Service Retirement benefit calculated for service earned by this group of members is a monthly allowance equal to the product of the 3% @ 55 benefit factor, years of service, and final compensation. (Final compensation is reduced by \$133.33 per month for members with a modified formula). The benefit factors for retirement at integral ages are shown below:

Retirement <u>Age</u>	3% at 55 <u>Factor</u>
50	2.400%
51	2.520%
52	2.640%
53	2.760%
54	2.880%
55 and older	3.000%

Post-Amendment

- The Service Retirement benefit calculated for service earned by this group of members is a monthly allowance equal to the product of the 3% @ 50 benefit factor, years of service, and final compensation. (Final compensation is reduced by \$133.33 per month for members with a modified formula). The benefit factors for retirement at integral ages are shown below:

Retirement <u>Age</u>	3% at 50 <u>Factor</u>
50	3.000%
51	3.000%
52	3.000%
53	3.000%
54	3.000%
55 and older	3.000%